

LISTING OF CLAIMS

1. (currently amended). A radiation-shielded X-ray module comprising:

an X-ray tube that emits X-rays;

a high voltage power supply coupled to said X-ray tube that supplies a high voltage for use with said X-ray tube; and

electrical connection that connects the X-ray tube to the high voltage power supply, wherein the X-ray tube and the high voltage power supply are encapsulated in a solid, electrically-insulating encapsulant containing a radio-opaque material distributed within the encapsulant, the encapsulant being in direct contact with substantially the entire X-ray tube and the high voltage power supply, the encapsulant being substantially free from entrained air, said radio-opaque material including a material selected from the group consisting of tungsten, lead, calcium, tantalum, tin, molybdenum, copper, strontium, aluminum, bismuth and compounds and mixtures containing any of the above materials.

2. (previously presented) The radiation-shielded X-ray module of Claim 1, further comprising:

a resonant converter that drives said high voltage power supply via an amplitude modulated waveform drive at a substantially resonant frequency.

3. (original) The radiation-shielded X-ray module of Claim 2, further comprising:

a step up transformer connected to said resonant converter; and

a high-voltage multiplier driven by said step up transformer.

4. (original) The radiation-shielded X-ray module of Claim 1, wherein an amount of said radio-opaque material is selected in accordance with a predetermined degree of radiation attenuation.

5. (previously presented). The radiation-shielded X-ray module of Claim 1, further comprising:

a thin conductive layer over said solid, electrically insulating encapsulant to provide electric shielding.

6. (original) The radiation-shielded X-ray module of Claim 5, wherein said thin conductive layer is formed from one of: a conductive metallic paint, a thin metal foil, and a metallized polymer.

7. (original) The radiation-shielded X-ray module of Claim 6, wherein said thin conductive layer is formed from a thin metal foil made from at least one of: copper and aluminum.

8. (previously presented) The radiation-shielded X-ray module of Claim 7, wherein said thin metal foil is adhered directly to said solid, electrically insulating encapsulant using an adhesive.

9. (previously presented) The radiation-shielded X-ray module of Claim 1, wherein the solid, electrically-insulating encapsulant is molded into a complex shape.

10. (original) The radiation-shielded X-ray module of Claim 1, wherein the X-ray tube and the high-voltage power supply are connected by a coaxial cable.

11. (original) The radiation-shielded X-ray module of Claim 1, wherein the radiation-shielded X-ray module is included in a portable X-ray instrument.

12-40 (cancelled).

41. (original) The radiation-shielded X-ray module of Claim 1, wherein the radio-opaque material comprises an oxide of tungsten, lead, or bismuth.

42. (previously presented) The radiation-shielded X-ray module of Claim 2, wherein the amplitude modulated waveform drive responds to a sensed resonant frequency.

43-44 (cancelled).